

**RE: Testing of (3) Samples of 450mm (18") Type S Polyethylene Pipe to
AASHTO M294M-03 for the ESC program**

Conditioning: Not Less than 40 hours at 23 + or – 2 C (73F)

Test Results:

Section 6.1 Basic Materials

Results:

	Density (g/cm³)	Melt Index (g/10 min)	Carbon Black
<i>TRI</i>	0.950	0.23	3.45
<i>BTC</i>	0.952	0.24	3.30

Specifications: ASTM 3350-00

Minimum cell class 335400C

Density: 0.945- 0.955 g/cm³

Melt Index: 0.15 to 0.40 g/10 min

Carbon Black Content: 2% minimum/ 5% maximum

SP-NCTL: 15%/24 hours

NOTE: If one or more of the properties above have a higher cell classification (with the exception of density), the compound is still acceptable provided the requirements are met.

Section 7.1 Workmanship

Specifications: Free of foreign inclusions and visible defects.

	Results
<i>TRI</i>	Pass
<i>BTC</i>	Pass

Conclusion: Specification was met.

Section 7.2. Pipe Dimensions

Section 7.2.2 Wall Thickness

Specification: The minimum inner wall thickness is 0.050in.

	<i>Inner wall Thickness</i>
<i>TRI</i>	0.107
<i>BTC</i>	0.101

Conclusion: Specification is met.

Section 7.2.3 Inside Diameter

Specifications: Nominal Diameter shall not exceed 4.5% oversized or 1.5% undersize.

Test Results:

	<i>Inside Diameter</i>
<i>TRI</i>	17.8
<i>BTC</i>	17.9

Conclusion: Specification is met.

Section 7.4 Pipe Stiffness

Specifications: The minimum pipe stiffness requirement at 5% deflection is 40psi.

	<i>Orientation</i>	<i>Pipe Stiffness (psi)</i>
<i>TRI</i>	0/45/90	55/53/52
<i>BTC</i>	0/45/90	49/50/50

Test Results:

Conclusions: Specification is met.

Section 7.5 Pipe Flattening

Specifications: There shall be no evidence of buckling, cracking, splitting, or delamination when the vertical inside diameter is reduced by 20%.

Test Results:

	<i>Results</i>
<i>TRI</i>	PASS
<i>BTC</i>	PASS

Conclusions: Specification is met.

Section 7.6 Environmental Stress Cracking

	<i>Results</i>
<i>TRI</i>	PASS
<i>BTC</i>	PASS

Conclusion: Specification is met.

Section 7.7 Brittleness

Specifications: The pipe specimens shall not crack or split. Five non-failures out of six will be considered acceptable

	<i>Results</i>
<i>TRI</i>	PASS
<i>BTC</i>	PASS

Conclusions: Specification is met.

Section 7.8 Fitting Requirements

Specifications: Pipe connections shall not separate to create a gap exceeding 5 mm. (.197”) when measured between the bell and spigot portions of the pipe fittings shall not crack or delaminate.

	<i>Results</i>
<i>TRI</i>	PASS
<i>BTC</i>	PASS

Section 11 Marking

Specification: Pipe and fitting shall be marked at intervals not more than 3.5m, manufacturer's name or trademark, nominal size, AASHTO M294M, plant code and date of manufacture or appropriate code.

	Size	<i>Production Date</i>
<i>TRI</i>	18" (450mm)	n/a
<i>BTC</i>	18" (450mm)	01/13/04

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